



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/564,990

01/18/2006

Stewart Lister Hay

P23254

7201

40401 7590 06/04/2008  
Hershkovitz & Associates, LLC  
2845 Duke Street  
Alexandria, VA 22314

EXAMINER

MUROMOTO JR, ROBERT H

ART UNIT

PAPER NUMBER

3765

NOTIFICATION DATE

DELIVERY MODE

06/04/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@hershkovitz.net  
patent@hershkovitz.net

|                              |   |  |  |
|------------------------------|---|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/564,990    | <b>Applicant(s)</b><br>HAY, STEWART LISTER |  |
|                              | <b>Examiner</b><br>BOBBY H. MUROMOTO JR | <b>Art Unit</b><br>3765                    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/9/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

Claim 19 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations in claim 19 are verbatim to those required already by claim 18.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the 'floats' required by claim 22 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18, 19, 22-28, 31, 32, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Ward US 6145550.

Ward clearly discloses a multilayered papermaking fabric for use in the papermaking process (providing papermaking fabric, depositing fiber slurry onto fabric, and dewatering to form paper), as claimed.

Ward discloses, "**The top layer (formed by the top MD yarns and the top CMD yarns) and the bottom layer (formed by the bottom MD yarns and the bottom CMD yarns)**, (claim 18) are **stitched together with twenty stitching yarns, designated herein as pairs (claim 18) 61a, 61b through 70a, 70b**. The stitching yarns **are**

**positioned in pairs between adjacent CMD yarns (claim 27 and 32).** For example, stitching yarns 61a and 61b are positioned between top CMD yarns 31 and 32 and between bottom CMD yarns 51 and 52. **The stitching yarns interweave with the top MD yarns and bottom MD yarns to bind the top and bottom fabric layers together** (claim 1).”

In this citation, top layer equates to “paper side layer”, bottom layer equates to “machine side layer”, CMD yarns are ‘weft yarns’, and stitching yarns equate to ‘weft binding yarns’.

The ‘unlocked’ limitation is disclosed by the Ward embodiment in figure 3b. Binder pair 182 interlaces warp 144 of the machine side layer. Weft 162 does not interlace warp 143 and therefore does not ‘lock’ the binder member 182, as defined by applicant’s special definition of the term “locked” or “unlocked” position.

Claim 19’s limitations are already addressed as they are the same as claim 18.

Ward discloses an embodiment in figure 5a, that clearly shows weft floats as claimed.

Ward discloses in figure 1a, an embodiment having a paper side plain weave (claim 23).

With respect to claim 24, Ward discloses, “Those skilled in this art will appreciate that fabrics of the present invention can be constructed with other twill patterns in the top layer. For example, a fabric can have a 1.times.3 or 1.times.4 twill top layer. Any of these twill patterns can be a conventional twill, such as that of the fabric 100, **or can take a broken twill pattern, such as those embodied in 4 or 5 harness satin single**

**layer fabrics**. Fabrics can also be constructed in which fiber support portions of stitching yarn pairs pass over different numbers of top MD yarns. In each instance, the skilled artisan should understand the appropriate modifications to the binding portions of the stitching yarns to accommodate differences in the fiber support portions.”

“Those skilled in this art will recognize that, although the plain weave and twill fabrics illustrated and described in detail herein are preferred, other fabric weaves, such as **other twill weaves and satins**, that employ pairs of stitching yarns integrated into the papermaking surface of a fabric with the top CMD yarns can also be made. **Also, any number of configurations of the bottom layer in which stitching yarn pairs stitch the bottom MD yarns can be used.** *It is also contemplated that, rather than including a pair of stitching yarns between each pair of top CMD yarns, a fabric in which a pair of stitching yarns is included between every other pair of top CMD yarns can be constructed (claim 27 and 28).* **In addition, although the illustrated fabrics have equal numbers of top and bottom MD and CMD yarns, this need not be the case for the present invention; other ratios, such as two top CMD yarns for each bottom CMD yarn, can also be employed** (claim 25 and 26).”

Ward clearly discloses, ‘broken twill’ is embodied in 4 or 5 harness satin fabrics, and then further states the bottom fabric can use any number of configurations disclosing the limitations in claim 24.

The citation also clearly discloses the various ratios recited in claim 25 and 26.

The citation also clearly discloses the arrangement in claims 27 and 28.

The limitations in claim 31 are encompassed by the arrangement disclosed by Ward with respect to claim 28.

The limitations in claim 32 are encompassed by the arrangement disclosed by Ward with respect to claim 27.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20, 21, 29, 30, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ward.

Although Ward discloses essentially all of the limitations of the instant invention, Ward does not specifically disclose, 'all weft binding pairs unlocked', 'at least 25% unlocked', three weft yarns between each binder pair, non-binder wefts having different sizes, or having more weft binder pairs than non-binding wefts. All of these limitations are a direct result of variations in the weave design, yarn location, selection and arrangement.

However, Ward does teach,

"Those skilled in this art will appreciate that the afore-described "reverse picks" configuration is created in the fabric by weaving the stitching yarns into the top and bottom MD yarns so that first an "a" stitching yarn immediately follows the weaving of top and bottom CMD yarns (followed by a "b" stitching yarn), then a "b" stitching yarn

immediately follows the next set of top and bottom CMD yarns (followed by an "a" stitching yarn). This pattern can be repeated throughout weaving. **Although it is preferred that all of the stitching yarn pairs follow this pattern (i.e., that 50 percent of the stitching yarn pairs be "reversed"), some benefit can be obtained by reversing only a smaller percentage (for example 25, 33, or 40 percent) of the stitching yarn pairs.**

Those skilled in this art will also appreciate that other plain weave patterns in **which the stitching yarns are divided differently into fiber support portions and binding portions can be constructed. For example, the fabric can include a top layer in which each stitching yarn of a pair passes over two or four top MD yarns in its fiber support portion. As illustrated, the stitching yarns can pass over different numbers of top MD yarns, or can pass over the same number. Of course, appropriate adjustment of the positioning of the bottom knuckles in the binding portions of such stitching yarns should be made with changes to the stitching yarn pattern on the top surface.**

Those skilled in this art will appreciate that fabrics of the present invention can be constructed with other twill patterns in the top layer. For example, a fabric can have a 1.times.3 or 1.times.4 twill top layer. Any of these twill patterns can be a conventional twill, such as that of the fabric 100, or can take a broken twill pattern, such as those embodied in 4 or 5 harness satin single layer fabrics. **Fabrics can also be constructed in which fiber support portions of stitching yarn pairs pass over different numbers of top MD yarns. In each instance, the skilled artisan should understand**



**the appropriate modifications to the binding portions of the stitching yarns to accommodate differences in the fiber support portions.**

Those skilled in this art will recognize that, although the plain weave and twill fabrics illustrated and described in detail herein are preferred, other fabric weaves, such as other twill weaves and satins, that employ pairs of stitching yarns integrated into the papermaking surface of a fabric with the top CMD yarns can also be made. **Also, any number of configurations of the bottom layer in which stitching yarn pairs stitch the bottom MD yarns can be used. It is also contemplated that, rather than including a pair of stitching yarns between each pair of top CMD yarns, a fabric in which a pair of stitching yarns is included between every other pair of top CMD yarns can be constructed. In addition, although the illustrated fabrics have equal numbers of top and bottom MD and CMD yarns, this need not be the case for the present invention; other ratios, such as two top CMD yarns for each bottom CMD yarn, can also be employed.**

**The configurations of the individual yarns utilized in the fabrics of the present invention can vary, depending upon the desired properties of the final papermakers' fabric.** For example, the yarns may be multifilament yarns, monofilament yarns, twisted multifilament or monofilament yarns, spun yarns, or any combination thereof. Also, the materials comprising yarns employed in the fabric of the present invention may be those commonly used in papermakers' fabric. For example, the yarns may be formed of cotton, wool, polypropylene, polyester, aramid, nylon, or the like. The

Art Unit: 3765

skilled artisan should select a yarn material according to the particular application of the final fabric.

**Regarding yarn dimensions, the particular size of the yarns is typically governed by the size and spacing of the papermaking surface.** Generally, the diameter of the top CMD yarns is about 25 to 75 percent of the diameter of the bottom CMD yarns, and the diameter of the top MD yarns is about equal to or smaller than the diameter of the top CMD yarns. In a typical fabric, the diameter of the top CMD yarns is between about 0.11 and 0.17 mm, the diameter of the top MD yarns is between about 0.11 and 0.15 mm, the diameter of the bottom CMD yarns is between about 0.20 and 0.40 mm, and the diameter of the bottom MD yarns is between about 0.17 and 0.25 mm. The diameter of the stitching yarns is typically between about 0.11 and 0.17 mm."

The citations above clearly address the obvious variable nature to the weave design, yarn location, selection and arrangement of a papermaking fabric depending on the desired properties of the final fabric.

Ward also clearly teaches, " the fabrics of the present invention address problems encountered with prior art triple layer forming fabrics. The fabrics of the present invention integrate the stitching yarns into the top surface of the fabric, whether it be a plain weave, a twill, **a satin, or other pattern**, and therefore avoid the marring of the papermaking surface that can accompany stitching yarns that comprise less of the papermaking surface. The integration of the fabric attributable to the stitching yarns also **greatly reduces (if not eliminating) interlayer wear**. In addition, because the stitching yarns comprise such a large portion of the papermaking surface, the differences in

Art Unit: 3765

tension between the top CMD yarns and the stitching yarns that can distort the papermaking surfaces of other fabric are less critical to the fabrics of the present invention. The density of the stitching yarns also provides **a tighter and more reliable binding of the top and bottom layers of the fabric, which can provide the designer with a wider variety of yarn choices to balance paper forming properties, durability and wear.**

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the explicitly disclosed papermaking fabric of Ward by varying weave design, yarn location, yarn selection and arrangement as taught by Ward to produce a papermaking fabric with the desired end properties of a particular end use application.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOBBY H. MUROMOTO JR whose telephone number is (571)272-4991. The examiner can normally be reached on 8-530, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Welch can be reached on 571-272-4996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3765

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert H Muromoto, Jr./  
Primary Examiner, Art Unit 3765